REMARKS

Claims 1 - 4, 7 and 9 - 11 remain active in this application. Amendment of claims 1 and 7 has been requested for clarity by inclusion of the word "simultaneously" and amplifying the context and claims 5, 6, 8 and 12 have been canceled and the salient recitations thereof incorporated into claims 1 and 7 and the word "develop", appearing as "developed" in claim 7, as originally filed and finally rejected, has been substituted for "obtain" in claim 1 to expedite the resolution of issues and to avoid a construction of the claims contrary to the clear import thereof and Applicants' intent. Support for the amendments appears throughout the application, including the Title, as well as in the original claims. No new matter has been introduced into the application.

Claims 1 and 7 (and claim 5 in a separate statement) have been rejected under 35 U.S.C. §103 as being unpatentable over Cheng et al. in view of Li. Claims 2 - 4, 6, and 8 - 11 have been rejected under 35 U.S.C. §103 as being unpatentable over Cheng et al. in view of Li and Mancuso. Claim 12 has been rejected under 35 U.S.C. §103 as being unpatentable of Cheng et al. in view of Li and Ozaki et al. Essentially, the Examiner has repeated the previous grounds of rejection but now includes reliance upon Li for teaching "obtaining vertically spatially filtered data and chrominance converted data" in connection with JPEG encoding of image data. These grounds of rejection are respectfully traversed for the reasons of record and the further remarks provided below.

In the response filed March 14, 2005, the following remarks were presented:

> A detailed discussion of Cheng et al. was provided in the remarks appended to the previous response filed August 5, 2004, which

is hereby fully incorporated by reference. In summary, Cheng et al. does not disclose a vertical spatial filter or any chrominance conversion technique much less any method or apparatus for performing such functions concurrently or simultaneously using hybrid coefficients. Rather, an HSI (hue, saturation, intensity) model for filtering is described which Cheng et al. asserts to closely resemble the color sensing properties of human vision. Cheng et al. states that conversion between an HSI color space and an RGB color space (e.g. from HSI to RGB or from RGB to HSI) is complicated and non-linear compared to conversion between other color spaces. Because of this conversion (required for image processing in an RGB color space as is usually done), there is a need to reduce the magnitude of noise in the HSI color space as noted at column 1, lines 44 - 59, and Cheng et al. is specific to filtering in the HSI color space, including its filter coefficients described at column 10, lines 15 - 67, and is entirely different from vertical spatial filtering as performed with chrominance conversion by the invention.

More specifically, Cheng et al. describes (at column 2, lines 41 - 56) a color model where the pixel data must first be converted to an HSI color space and then filtered and encoded at a higher bit rate than the remainder of the pixel data. No similar conversion process or higher bit rate is required by the invention. No mention is seen in Cheng et al. of applying consecutive lines of luminance and chrominance data, as claimed, which is necessary for vertical

spatial filtering and chrominance conversion. Thus, the nature of HSI filtering is so different from vertical spatial filtering (and chrominance conversion) that the filtering of Cheng et al. clearly teaches away from the simultaneous/concurrent filtering and chrominance conversion of the invention. That is, not only does Cheng et al. fail to teach or suggest anything having to do with vertical spatial filtering or chrominance conversion, the filtering which is taught by Cheng et al. teaches away from the filtering and chrominance conversion of the invention and, moreover, cannot be modified to answer the claim recitations without precluding the intended function of Cheng et al. See In re Gordon, 221 USPQ 1125 (Fed. Circ., 1984).

Even if Cheng et al. could be properly modified by the teaching or suggestions of Li, it is evident that Li does not mitigate the many deficiencies and substantial irrelevancy of Cheng et al. Li simply describes a standard JPEG encoder in which data is transformed to a wavelet domain (e.g. discrete cosine transform) and then quantized. The quantizer coefficients are then regrouped to improve spatial resolution. This function is not that of a filter at all but a typical encoder quantizer with coefficients. At best, Li merely assumes vertically spatial filtered and chrominance converted data as an input but teaches nothing about how to derive it. In this regard, it is noted that the Examiner merely asserts that the operation flow of Li comprises "obtaining vertically spatially

filtered data and chrominance converted data" while making reference to Figure 2 and the first paragraph of page 3 of Li. There is no mention of filtering of luminance or chrominance data in this passage or Figure 2 but, rather, conversion of data of an RGB color space to decorrelated luminance, chrominance red and chrominance blue (YCrCb) color space or reversible component transform (RCT) component space.

Similarly, Cheng et al. cannot properly be modified in accordance with the teachings or suggestions of Mancuso et al. to answer the recitations of the claims. Even if proper, the teachings and suggestions of Mancuso do not mitigate the deficiencies and substantial irrelevance of Cheng et al. and, moreover, Mancuso et al. does not contain the teachings or suggestions which the Examiner evidently attributes to it.

More specifically, it is not disputed that conventional scanning will generate consecutive lines of progressive scan format. However, Mancuso et al. does not teach or suggest separation of progressive scanned data into luminance and chrominance components and stored vertically in buffers and does not disclose a vertical spatial filter or indicate how consecutive lines of progressive scanned data could be vertically stored. In regard to interlaced fields, the Examiner relies on components 604 and 608 of Mancuso et al. which are, in fact, as stated in the text also relied upon by the Examiner, a horizontal length computation block (604) and a vertical length computation block (608) respectively. These are both components of

the de-blocking system of Mancuso et al. which reduce blocking artifacts and have nothing to do with a preprocessing method for consecutively presented lines of image data, particularly of an odd field and an even field thereof. While column 8, line 54, to column 9, line 6, cited by the Examiner refer to a *horizontal* interpolation method, no reference is made to filtering luminance and chrominance data using hybrid filter coefficients or performing *vertical* spatial filtering concurrently/simultaneously with chrominance conversion.

Similarly, in regard to Ozaki et al., Figure 8a and column 6, line 65 to column 7, line 21, relied upon by the Examiner, is a block diagram of a scanning converter with an aliasing detector circuit and a time spatial filter with a switch for 2:1 sub-sampling. The sub-sampling is performed on intensity/luminance data by limiting bandwidth of the first set of intensity signals along a vertical temporal frequency. Thus, Figure 8a represents a temporal filter with 2:1 sub-sampling of lines of luminance data and not a vertical spatial filter. Ozaki et al. does not teach or suggest sub-sampling chrominance converted data. In any case, even if Ozaki et al did in fact, disclose anything of relevance to the invention, modification of Cheng et al. in accordance therewith would be improper as precluding operation of Cheng et al. (and/or Li) as discussed above.

In summary, it is again respectfully submitted that the Examiner has not made a *prima facie* demonstration of obviousness in

regard to any claim in the application. Rather, the Examiner has effectively admitted that no such demonstration was made based on the prior art previously applied by the current reliance of Li in all grounds of rejection of record but has failed to show any relevance of Li to preprocessing of image data to be encoded other than the possible assumption that vertically spatially filtered data and chrominance converted data are input to the JPEG encoding process which does not mitigate the deficiencies of the previously applied references as previously pointed out. Moreover, while the references clearly fail to teach or suggest the recitations of any claim, they similarly do not demonstrate a level of ordinary skill in the art which would support a conclusion of obviousness of the claimed subject matter by leading to an expectation of success in achieving the meritorious functions of the invention in providing simultaneous/concurrent vertical spatial filtering and chrominance conversion, particularly from substantially the same architecture of the processing circuitry and with reduced latency, as discussed on page 16, line 11, and does so with reduced hardware requirements; which functions are supported by the claim recitations of applying luminance and chrominance data of consecutively presented lines of data to respective filter inputs and applying hybrid filter coefficients to the filter, as recited in claim 1.

Additionally, to expedite the resolution of issues and to expedite the prosecution of this application, claims 1 and 7 have been additionally amended to

include the recitations of claims 5, 6, 8 and 12 (the recitations of claim 6 being added to both claims 1 and 7). The processing computations of Cheng et al. clearly are totally unlike the specific filtering computations of multiplying luminance and chrominance data by hybrid coefficients and summing the result as previously recited in claim 6 or the step of or means for sub-sampling or removing alternate lines of chrominance data recited in claims 5 and 12, respectively. The buffering of claim 8 has also been added to claim 1 as well as claim 7. It is respectfully submitted that the prior art of record, taken singly or in any combination, does not contain teachings or suggestions or otherwise provide evidence of a level of ordinary skill in the art that would support a conclusion of obviousness or lead to an expectation of success in developing *both* vertically filtered image data and chrominance converted image data simultaneously/concurrently from a filter having a single architecture for processing both luminance vertical filtering and chrominance conversion and with minimal buffering requirements and using the specific processing computations on specific data of previous claim 6, now included in *both* independent claims 1 and 7. Additionally, the grounds of rejection as stated in the final rejection are now understood (from the Examiner's application of Li which, as previously pointed out, merely assumes these values as inputs) to construe the word "obtain", previously in claim 1, in the sense of "input" rather than in the sense of "compute", "output" or "develop" as recited in claim 7 and which the Examiner does not address; the Examiner apparently imputing the construction accorded to "obtain" in claim 1 to "developed" in claim 7, contrary to the clear import thereof as intended by Applicants.

Accordingly, it is respectfully submitted to be evident that the various grounds of rejection asserted

in the present office action are in error and untenable, particularly in regard to the claims amended as requested above, and that no *prima facie* demonstration of obviousness has been made in regard to any claim in the application. Therefore, reconsideration and withdrawal of the grounds of rejection asserted in regard to claims 1 - 12 is respectfully requested.

It was pointed out above that the above-requested amendments transfer recitations of dependent claims into independent claims 1 and 7, substitute terminology from claim 7 into claim 1 and include a substantial synonym for language already in the independent claims as finally rejected. Therefore, it is again respectfully submitted that the above-requested amendments logically cannot raise any new issues and should be entered. Further, as pointed out in the response filed March 14, 2005, it is respectfully submitted that the finality of the present action is premature since it is axiomatic that an action should not be made final when the previous action did not include a demonstration of the *prima facie* propriety of the grounds of rejection asserted, as the Examiner has effectively admitted, as discussed above. It is also axiomatic that an action should not be made final when that action similarly does not include a *prima facie* demonstration of the propriety of the grounds of rejection asserted therein, as discussed above. Therefore, it is respectfully submitted that the finality of the present office action should be withdrawn and the requested amendments entered as a matter of right. In any event, it is also respectfully submitted that entry of the above-requested amendments is well-justified as placing the application in condition for allowance or in the alternative, as materially reducing and/or simplifying issues for Appeal. The premature finality of the present action

was discussed in the remarks appended to the response filed March 14, 2005 and the Examiner has not responded thereto in the Advisory Action of March 24, 2005.

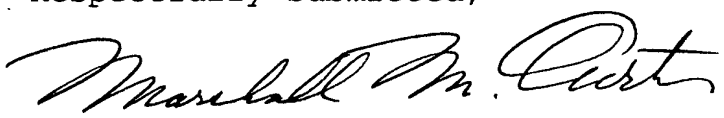
An earnest effort has been made in this supplemental response and by the above additional remarks and amendments seeking to transfer recitations from dependent claims to independent claims in order to obtain proper consideration thereof as well as emphasize the difference in the type of image data processing performed by the invention from the HSI filtering performed by Cheng et al. and that the architecture of the processing circuitry is consistent for both vertical spatial filtering and chrominance conversion in accordance with the invention. Upon consideration of this supplemental response, if any issue is seen to remain, it is respectfully requested that the Examiner contact the undersigned by telephone at the number given below in order to expedite resolution of the same. In this regard, this request was discussed with the Examiner on March 31, 2005, and the undersigned was assured by the Examiner that such an interview, if necessary, would be granted.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No.

09-0457 of International Business Machines Corporation (Endicott).

Respectfully submitted,



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